Alberto Rosas

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Education

California State University, East Bay Hayward, CA
Bachelor of Science in Computer Engineering, Minor in Computer Science *Expected Graduation: May 2026*

- ***Organizations/Awards:*** *President of IEEE Student Branch, IEEE Region 6 Student Presentation winner*

Relevant coursework: Embedded Systems, Operating Systems, Computer Architecture, VLSI Design, Data Structures & Algorithms, Microprocessor Laboratory, Digital Signal Processing, Electric Circuits, Computer Networks, Quantum circuits and algorithms

Technical Skills

PCB Design | Microcontroller Programming | FPGA | Digital Circuit Design | VLSI layout | Hardware and Software troubleshooting | System deployment | Quality inspection | Digital and Analog circuit debugging | C/C++ | Python | Assembly | Linux | Verilog/VHDL | Data Analysis | Autodesk Fusion 360 | MathCAD 15 | Logisim | LogicWorks | Arduino IDE | MPLAB X | Microsoft Suite | Xilinx Vivado | Oscilloscope

Projects

Environmental and Personal Information Processor

- Led design and implementation of a smartwatch with environmental sensors using ATmega2560.
- Developed firmware in C for real-time data acquisition and communication.
- Optimized power consumption to reduce energy usage

Oscilloscope Using FPGA and ADC

- Implemented hsync and vsync signals to control 8-bit color VGA output, enabling real-time display.
- Developed an FPGA-based oscilloscope using Verilog to process and display waveforms.
- Designed an analog signal processing circuit and conducted extensive testing with lab equipment.

Fast Multiplier Layout

- Designed an 8-bit fast multiplier using a Wallace tree in Magic VLSI layout software.
- Implemented signed and unsigned multiplication with 2's complement optimization.

Minesweeper in Assembly

- Developed a Minesweeper game in MIPS assembly, handling grid generation, user input, and game logic.
- Optimized memory usage and implemented recursive algorithms for gameplay mechanics.

Hand Gesture RC Car

- Developed a gesture-controlled RC car using Arduino, MPU6050 accelerometer, and NRF24L01.
- Integrated embedded systems, C++, wireless communication, and sensor processing for real-time motion control.

Work Experience

Consultation Agent May 2024 – Present
Geek Squad *Union City*

- Diagnosed and repaired hardware and software issues across various computing devices.
- Built, configured, and optimized custom PC builds, ensuring performance for client needs.
- Provided technical and troubleshooting support for hardware upgrades, OS installations, etc.
- Assisted customers in selecting appropriate hardware solutions, balancing performance, reliability, and cost-effectiveness.

Student Research Assistant Jan. 2024 - May 2024

California State University, East Bay *Hayward, CA*

- Developed Python scripts to automate data extraction from the Thermo-Chimie database, improving efficiency in thermochemical data analysis.
- Processed and categorized large datasets, filtering temperature-dependent equilibrium constants for accurate simulations.
- Created structured .dat and .csv files for numerical analysis and input into PhreeQc, ensuring precise chemical speciation modeling.